

REMARKS

The disclosure is objected to because of typographical errors appearing in the paragraph beginning at page 11, line 13. Those errors have been corrected. Additional corrections to the specification have been made to correct other typographical and grammatical errors. No new matter has been added.

Claim 12 is rejected under 35 U.S.C. § 112, first paragraph, for lack of enablement of a coating method for steel plate using any aqueous lubricant urethane composition. Claim 12 has been amended to require coating a steel plate with the aqueous lubricant urethane composition produced according to claim 2. This urethane resin composition is disclosed in the application at least at pages 6-17. Withdrawal of the enablement rejection of claim 12 is respectfully requested.

Claims 1-11 and 13-20 stand rejected under 35 U.S.C. § 112, first paragraph, for lack of enablement concerning the type of molecular weight for the polyester polyol, polyethylene and polyurethane specified therein. The molecular weights specified in the present application are all number average molecular weights. Claims 1, 2, 8 and 17 have been amended to specify that the molecular weights are "number average molecular weight". Although not specifically stated in the application, one skilled in the art would clearly understand that the molecular weights specified therein are number average molecular weight in view of their low number. For example, the polyester polyols have a molecular weight of 500 to 3000. Only a number average molecular weight would have such a low value. No new matter has been added. Withdrawal of the enablement rejection of claims 1-11 and 13-20 is respectfully requested.

Claims 1-11 and 13-20 stand rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness for nine reasons specified on pages 3-4 of the Office Action. Each of these points has been addressed in the amendment of the claims as follows.

- (1) Claim 1 has been amended to remove the dot in front of “30”.
- (2) Step (2) of claims 1 and 2 have been amended to indicate that curing agent is added to the aqueous polyurethane resin solution to cure the polyurethane resin. For the polyurethane resin to be curable, it must contain reactive groups.
- (3) As stated above, claims 1 and 2 now clearly recite that the curing agent is added to the aqueous polyurethane resin solution. This is consistent with Example 1 which describes addition of the curing agent to the polyurethane resin solution to cure (react) the resin. Step (2) of claim 1 and 2 now clearly indicate that the curing agent is added to the aqueous polyurethane resin solution.
- (4) Step (2) of claims 1 and 2 have been amended to specify that the curing agent is “a blocked isocyanate or an aziridine curing agent”.
- (5) Claim 2 has been amended to specify that the resin solid content is based on the polyurethane resin solid content. This is consistent with the examples set forth in Example 2.
- (6) Step (3) of claim 2 is amended to specify that the ratio of polyethylene wax and fluorine resin-modified polyethylene wax is based on weight. Support therefor can be found at page 15, lines 15-25.
- (7) The antecedent basis for “said wax mixture” of claim 6 is now present in claim 2, step (3).

- (8) The term "based" in claims 8 and 17 has been deleted.
- (9) The phrases which begin with "such as" in claims 11 and 20 have been deleted.

In view of the foregoing, the indefiniteness rejection of claims 1-11 and 13-20 should now be withdrawn.

Claims 1, 3-5 and 7-11 stand rejected under 35 U.S.C. § 102(b) for anticipation by U.S. Patent No. 5,569,707 to Blum et al. Claims 2, 6 and 12-20 stand rejected under 35 U.S.C. § 103(a) for obviousness over U.S. Patent No. 5,061,575 to Mohri et al. in view of the Blum patent. Applicants respectfully traverse these rejections for the following reasons.

The present invention requires a particular combination of components added and reacted in a particular order. Claims 1 and 2 first require producing an aqueous polyurethane resin solution and then crosslinking that aqueous polyurethane resin solution with a curing agent. The Blum patent discloses a similar process in which in a resin composition is cross linked with a curing agent. However, the particular order of steps in the production of the aqueous polyurethane resin solution are different between the claimed process and that of Blum. In particular, the claimed process requires the following order of steps: (a) reaction of a polyol, diisocyanate, acid and amine; (b) dispersion of the reaction mixture produced in step (a) in water and; (c) addition of a glycol, triol or diamine chain extender.

By contrast, the Blum patent teaches reacting a polyol, acid, amino, alcohol chain extenders together and polyisocyanate in a first step. The reaction mixture is then dispersed in water and dried. See column 3, lines 8-29. All components including the chain

extenders of the present invention (glycol, triol or diamine) are added to the mixture and reacted prior to dispersion in water in the Blum process.

In the present invention, the chain extender is not added until an initial reaction mixture containing a prepolymer from step (a) is dispersed in water. Claims 1 and 2 have been amended to specify that the recited steps are performed in the listed order. The Blum patent contains no teaching or suggestion to order the reaction steps as in claims 1 and 2. Blum only considers dispersing the reaction mixture in water after all components (except curing agent) are reacted. Accordingly, claims 1, 3-5 and 7-11 (which require dispersing in water prior to addition of chain extender) define over the Blum patent.

The Mohri patent is relied upon for its teachings to coat a steel plate. Nothing in the Mohri patent provides any motivation for altering the ordered process steps set forth in Blum to practice the claimed invention. Therefore, claims 2, 6 and 12-20 likewise define over the combined teachings of the Blum and Mohri patents.

Claims 1-20 are believed to define over the prior art of record and be in condition for allowance.

Respectfully submitted,

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